

Wherein I claim:

1        1. An imaging system comprising a surface for receiving an image, and a  
2 light modulator comprising a plurality of light valves in a two-dimensional array having  
3 orthogonal rows and columns in a first Cartesian coordinate system having a first and a  
4 second orthogonal axes, said columns arrayed along said first axis in the coordinate  
5 system; said rows arrayed along the second axis and a number of said rows forming a  
6 segment; and wherein said surface is transported relative to the modulator in a direction  
7 along a transport axis; wherein the first axis and the transport axis form an angle other  
8 than  $90^\circ$ , said angle  $\alpha$  inversely proportional to the number of rows in the segment;

9        wherein the number of rows in the segment is  $n$ ;  $n$  is an integer greater than 1;  
10 and the modulator comprises at least 2 segments; further wherein each light valve has  
11 an X dimension along the first axis and a Y dimension along the second axis, and  $X=Y$   
12 and the angle  $\alpha=\tan^{-1}(1/n)$ .

1        2. The imaging system according to claim 1 wherein said angle is between  
2 about  $2^\circ$  and  $45^\circ$ .

1        3. The imaging system according to claim 1 further comprising a radiant  
2 energy source and at least one lens for directing said radiant energy onto said  
3 modulator.

1        4. The imaging system according to claim 1 further comprising at least one  
2 lens for directing said radiant energy onto said surface.

1        5. The imaging system according to claim 1 wherein said surface comprises  
2 a printing plate.

1           6.     The imaging system according to claim 1 wherein said surface comprises  
2     an image detecting element.

1           7.     The imaging system according to claim 6 wherein said image detecting  
2     element is a photosensitive layer.

1           8.     The imaging system according to claim 1 wherein said image detecting  
2     element is a plurality of photosensitive elements.

1           9.     The imaging system according to claim 1 wherein said imaging surface is  
2     an image display surface.

1           10.    The imaging system according to claim 1 further comprising a modulator  
2     controller connected to said modulator for turning on and off any selected number of  
3     light valves in said light valve array.

1           11.    The imaging system according to claim 10 further comprising a  
2     transporter for transporting said surface in a plane defined by said first coordinate  
3     system in the transport direction.

1           12.    The imaging system according to claim 11 further including means for  
2     synchronizing said surface transporter and said modulator controller to repeatedly  
3     expose a same selected area on said surface using light valves in different light valve  
4     rows thereby to effect cumulative exposure of a desired surface area.

1           13.    The imaging system of claim 1 wherein the surface for receiving an  
2     image is wrapped around a cylindrical drum which rotates in the transport direction.

1           14.    The imaging system of claim 1 wherein the surface for receiving an  
2     image is positioned on a flatbed.

1        15. The imaging system of claim 1 further comprising a transport head that  
2 transports the light valve array, and wherein the imaging surface is a cylindrical drum  
3 and the transport head rotates around the cylindrical drum in the transport direction.

1        16. The imaging system according to claim 1 further comprising:

2            (a) a source of radiation and an optical projection system for directing at least a  
3 portion of said radiation onto said modulator and therefrom onto said surface; and

4            (b) a scanning means for scanning said radiation on said surface.

1        17. The imaging system of claim 1 wherein the light modulator is selected  
2 from the group consisting of an optical switch, a MEMS device, an electro-holographic  
3 device, an acousto-optic device, a liquid crystal display device, a Bragg grating device,  
4 a bubblejet device, a thermo-optic interferrametric device and a thermo capillary  
5 device.

1        18. The imaging system of claim 1 wherein the surface for receiving an  
2 image is selected from the group consisting of a photosensitive surface, a display  
3 screen, a circuit board, and a radiation detection device.

1        19. A method of imaging using the imaging system of claim 1 wherein the  
2 light valves provide radiation below the exposure threshold of the image receiving  
3 surface.

1        20. An method of imaging comprising:

2            (A) positioning a surface for receiving an image at a focal point of a light  
3 modulator;

4           said light modulator comprising a plurality of light valves in a two-dimensional  
5   array having orthogonal rows and columns in a first Cartesian coordinate system having  
6   a first and a second orthogonal axes, said columns arrayed along said first axis in the  
7   coordinate system; said rows arrayed along the second axis;

8           (B) forming a segment comprising a number of said rows;

9           (C) activating said light valves;

10           (D) transporting said surface relative to the modulator in a direction along a  
11   transport axis, wherein the first axis and the transport axis form an angle  $\alpha$  other than  
12   90°, said angle  $\alpha$  inversely proportional to the number of rows in the segment;

13           wherein the number of rows in the segment is  $n$ ;  $n$  is an integer greater than 1;  
14   and the modulator comprises at least 2 segments;

15           further wherein each light valve has an X dimension along the first axis and a Y  
16   dimension along the second axis, and  $X=Y$  and the angle  $\alpha = \tan^{-1}(1/n)$ .